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ABSTRACT

Postgraduate education, employment, and attitudes of 1973 and 1979 graduates of the University of California, Davis, were surveyed in 1980. The return rates were 54 percent of the 1973 graduates and 61 percent of the 1979 graduates. For the 1979 graduates it was found that one-third are enrolled in graduate/professional school, about half attend the University of California, and about nine out of ten enrolled graduate/professional students attend school full-time. For the 1973 graduates it was found that two-thirds have undertaken postgraduate degrees, over half have attained at least one advanced degree, 18 percent are currently enrolled in school, and 43 percent of enrolled graduates are in school full-time. For the 1979 graduates, 77 percent are employed, 81 percent full-time, while most who work part-time also attend school; the median salary of full-time workers is $12,650; and 12 percent of employed graduates have not yet chosen a career field. For the 1973 graduates, 89 percent are working, 87 percent full-time; the median salary of full-time workers is $19,963; and 95 percent of graduates employed full-time have chosen a career field, and 84 percent of these are employed in their preferred field. Information is presented on attitudes about undergraduate major and preparation for postgraduate study; the incidence of postgraduate degrees; preparedness for occupations; relationships between occupations and undergraduate majors; job satisfaction; employer activities; intrinsic rewards of college education; and impression of schooling at the Davis campus. A questionnaire is appended. (SW)

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# THE GRADUATES OF 1979 AND 1973

## Their Postgraduate Studies, Occupations, and Impressions of UC Davis

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**Research Report No. 10**
**Office for Student Affairs**
**Research and Evaluation**
**University of California, Davis**

HE 014 864

# THE GRADUATES OF 1979 AND 1973

## THEIR POSTGRADUATE STUDIES, OCCUPATIONS, AND IMPRESSIONS

## OF UC DAVIS

Bonnie L. MacKenzie

Office for Student Affairs
Research and Evaluation
University of California, Davis

June, 1981

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One of the most important sources of information about the effectiveness of a university's overall program is its graduates. Their ability to use their educations to secure preferred occupations is important to prospective students, to the faculty who design courses, to accrediting and government agencies, and most especially to the graduates themselves. M. S. McLean has observed of graduates of American colleges and universities:

> The alumni and ex-students are our products. Only from them can we learn what they got from us, what we did to and for them that was right, wrong, of consequences, of inconsequences, fruitful and wasteful. Only by learning these can we reshape the program of higher education in America so that it may function, be effective and win continued support. Only then can we learn what to cut and what to put into the future ones.

Information about educational outcomes has become increasingly important with growing demands on colleges for accountability. The Guaranteed Student Loan Program requires that colleges provide information to prospective students about the employment and salaries of graduates. Professional organizations and legislative committees often request outcomes information, and state commissions of education request data about employment potential for degree recipients when new degree proposals are submitted and when reviewing existing degree programs.

Outcomes information is critically important to currently-enrolled and potential students. These students often assume that a college degree will lead to a good job. This has not always been the case: college graduates during the Depression found that a degree did not guarantee employment, and during the job crises of the late 1960's and 1970's college graduates sometimes found themselves in jobs that underutilized their skills. Also, the economic return from a college education has fallen in recent years. Although a four-year college degree still yields substantial economic benefits over a high school degree, the margin has decreased; and two-year college degrees may be of relatively little economic benefit when expected lifetime earnings are compared to those of high school graduates. These facts are important to communicate to students designing educational programs.

Purposes of the Study.

The general objectives of this study are:

1) To assess the extent to which graduates of 1973 and 1979 have pursued postgraduate education,

2) To determine the relationship between occupational outcomes and major field of study at UC Davis for these two graduating classes,

3) To measure graduates' self-assessment of their growth during college in a number of personal and intellectual areas, and

4) To explore graduates' attitudes toward their undergraduate majors and UC Davis in general.

The survey was designed to accomplish several specific tasks as well:

1) To identify graduates interested in talking to high school or junior college students considering applying to UC Davis. Names of interested respondents were forwarded to the Admissions Office for subsequent contact.

2) To evaluate UC Davis career planning and placement services. A February 1981 report titled "Follow-up Evaluation of Work-Learn and Career Planning & Placement" discusses the use of these services, graduates' knowledge of job opportunities in their fields, methods of job placement, and work experiences during college.

3) To provide career counselors and students with recent information about graduates' career choices and postgraduate educational experiences. This information is now available from career counselors and the career library in the Work-Learn and Career Planning & Placement Center (WLCP&P).

4) To assess the career and educational outcomes of ethnic minority graduates of the years 1973 through 1979. A forthcoming special report will be based on this sample of ethnic groups that are numerically underrepresented at the University of California in relation to their representation among California high school graduates.

Throughout this report, reference is made to an earlier UC Davis graduate survey conducted in 1977.[1] At that time, graduates of 1976 and 1973 were surveyed; they were one and four years out of college at that point. By combining results from that survey with the present one, comparisons are possible of jobs and educational attainments of graduates one, four, and seven years after graduation.

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[1] The Recent Graduates of UC Davis, Office for Student Affairs Research and Evaluation, UC Davis, June 1978.

Methods.

This report is based on analyses of a four-page questionnaire (see Appendix A) mailed in May 1980 to all graduates of calendar years 1973 and 1979. The return rates were 54% (1973 graduates) and 61% (1979 graduates). Graduates of 96 different undergraduate majors belonging to 12 fields of study returned questionnaires (see Appendix B). A field of study consists of a group of related majors; for instance, "Fine Arts" includes respondents from five majors: Art, Art History, Art Studio, Dramatic Arts, and Music. Tables in this report often combine Fine Arts and Letters into a Humanities category.

A description of the sample, the respondent population, and a comparison between the two are shown in Appendix C. The results of a telephone survey of nonrespondents is also shown. Analysis indicated that survey results were generally free of response bias, with one exception. This will be discussed at a relevant point in the text.

## HIGHLIGHTS OF THE STUDY

### SCHOOLING

#### One Year after Graduation.

One-third of graduates are enrolled in graduate/professional school and about half of these students attend the University of California. Out-of-state universities are the second most popular institutions for graduate study. About nine out of ten enrolled graduate/professional students attend school full-time. These results are similar to those reported for 1976 graduates in the earlier graduate survey.

#### Seven Years after Graduation.

Two-thirds of 1973 graduates have undertaken postgraduate degrees, and over half have attained at least one advanced degree. Eighteen percent are currently enrolled in school, 23% of them at the University of California and 30% at campuses of California State University and Colleges (CSUC). Only 43% of enrolled graduates are in school full-time.

Comparison of UC Davis graduates one, four, and seven years after graduation (based on the 1977 and 1980 graduate surveys) shows the following patterns in educational attainment.

| Characteristics | Years Since Graduation | | |
|---|---|---|---|
| | One | Four | Seven |
| Percent who have undertaken postgraduate studies | 31 | 60 | 67 |
| Percent holding a postgraduate degree | 2 | 35 | 52 |

Graduates of 1973 and 1979 said they were "more than adequately" prepared for postgraduate studies.

### EMPLOYMENT

#### One Year after Graduation.

Seventy-seven percent of graduates are employed, 81% of them full-time. Most of those who work part-time also attend school. The median salary of full-time workers is $12,650. Twelve percent of employed graduates have not yet chosen a career field. Among graduates who have chosen a career field and also work full-time, three-fourths have jobs in their

chosen fields. On the average, graduates working full-time are satisfied with their jobs, and the most important aspect of job satisfaction is the challenge involved.

Seven Years after Graduation.

Eighty-nine percent of graduates are working, 87% of them full-time. The median salary of full-time workers is $19,963. Ninety-five percent of graduates employed full-time have chosen a career field: of this number, 84% are employed in their preferred field. As is the case for the younger graduates, 1973 graduates are largely satisfied with their jobs (only 9% of full-time workers are dissatisfied), and the challenge involved in the job is the most important component of job satisfaction.

## PROGRESS IN THE CAREERS AND POSTGRADUATE EDUCATIONS OF 1973 GRADUATES

The class of 1973 made steady gains in educational attainment and employment since they were last surveyed in 1977. In the past three years an additional 7% have undertaken postgraduate degrees bringing the total to 67%. Another 17% hold postgraduate degrees, raising the proportion of those with advanced degree to 52%. Also, various aspects of career progress are evident. Job satisfaction in full-time jobs rose: on a scale from 1 (high) to 5 (low), job satisfaction of 1973 graduates has risen from 3.4 (initial jobs) to 2.3 (jobs held in 1977) to 2.0 (current jobs). The percent employed in professional, technical, or managerial jobs rose from 61% (in initial jobs) to 80% (jobs held in 1977) to 92% (current jobs). Also the percent working in the career field of their choice rose from 47% in initial jobs to 84% in current jobs. The percent undecided about a career field has also declined from 12% during initial jobs to 6% among the currently employed.

## IMPRESSIONS OF UC DAVIS

One Year after Graduation.

The majority (69%) of 1979 graduates would chose the same undergraduate major again if they were to start college over; 9% are uncertain, and 21% say they would not, usually because of a change in career interests or because job opportunities are lacking in their major field. Three-fourths say they would attend UC Davis if they could start college over again, 15% are uncertain, and 10% say they would not.

Recent graduates rated the contribution of their undergraduate education to their academic and personal growth in 14 areas. Over 90% of graduates say that UC Davis

contributed "very much" or "somewhat" to growth in: defining and solving problems, understanding written information, recognizing assumptions/making logical inferences/reaching correct conclusions, and persisting in difficult tasks.

Seven Years after Graduation.

Among the older graduates fewer (55%) would choose the same major again; and 11% are uncertain about whether they would or not. This is usually because of changing interests. Among 1973 graduates, 69% would choose UC Davis again, and 12% are uncertain whether they would or not.

## POSTGRADUATE EDUCATION

For many students, preparation for graduate and professional school is an important reason for choosing UC Davis. Over half the incoming freshmen surveyed in 1976 described preparation for graduate school as a very important interest,[1] and California high school seniors interested in attending UC Davis cite preparation for advanced studies as slightly more important in choosing a college[2] than employment prospects after graduation.

This strong interest in graduate education continues during undergraduate studies, no doubt strengthened by the influence of a research-oriented faculty. In a 1978 study,[3] 52% of faculty and 62% of students described graduate school preparation as one of the ideal goals of undergraduate education. Greater percentages (about three-fourths) of both groups thought that the ACTUAL goal of undergraduate instruction is preparation for graduate school; thus at least some respondents felt that the actual emphasis on postgraduate preparation exceeds the ideal.

The 1977 survey of UC Davis graduates showed that students often fulfill their aspirations to attain postgraduate degrees.[4] This chapter expands that study of graduate/professional school activities by discussing the incidence of professional and academic graduate degrees, variations in graduate study among males and females, graduates' self-assessed level of preparation for specific degrees, and the types of graduate work

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[1] The Class of 1980 as Entering Freshmen, Office for Student Affairs Research and Evaluation, UC Davis, May 1979.
[2] Factors Affecting Student Choice, UC Undergraduate Enrollment Study, UC Systemwide Office of the Academic Vice-President, June 1980.
[3] Report on the Academic Inventory 1978, ASUCD.
[4] The Recent Graduates of UC Davis, Office for Student Affairs Research and Evaluation, UC Davis, June 1978.

attempted by graduates of various majors.

## The Incidence of Postgraduate Studies

The timing and duration of graduate studies vary considerably by field of study, with students in some fields starting later and taking longer than others. For instance, the national median elapsed time from baccalaureate to doctorate is 13 years in Education and six years in Chemistry.[1] Rates of degree completion also vary, with students in professional schools showing greater completion rates than PhD and EdD candidates. Because of these variations, the data below are likely to be more representative of ultimate degree attainment in some fields than in others.

Two-thirds of 1973 graduates have taken graduate courses, and 88% of these people, or 59% of all graduates, are currently enrolled or have earned a graduate degree.[2] The incidence of postgraduate degree enrollment varies greatly by field of study and, to some degree, by sex (see Appendix D). Graduates in Animal Science, Biological Sciences, Letters, and Physical Science are more likely than average to go on to graduate school within seven years of college. Specific majors[3] within these fields which show over three-quarters of graduates continuing their educations are: Biological Sciences, Physical Education, Mathematics, and Home Economics. These majors have large numbers of 1973 graduates acquiring teaching credentials.

Men are more likely to continue their studies than women (63% versus 55%), with the largest differences occurring among Letters and Plant Science graduates. In contrast to the general trend, women graduates with Food Science majors are somewhat more likely than men in that field to go to graduate school.

## Types Of Degrees

The types of degrees sought by graduates can be categorized as professional or academic; professional degrees are those like the JD, MBA, or MSW that train for specific professions. Because many graduates receive multiple degrees, Table 1 below represents some

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[1] 1980 Fact Book for Academic Administrators. p. 142.
[2] Eight percent (67% - 59%) have either interrupted their degree studies or enrolled for coursework only.
[3] Only majors with over 20 respondents were reviewed.

people more than once. Professional degrees (including teaching credentials) were undertaken by 47% of 1973 graduates and academic degrees by 32%.[1]

Table 1 shows that the largest groups of graduates have undertaken teaching credentials and academic masters degrees. Five percent went on to law school, 3% to veterinary school, and 5% to business school. Five percent have sought PhDs and MDs.[2]

TABLE 1

ADVANCED DEGREES IN PROGRESS OR ATTAINED

-1973 Graduates-

(In percent of graduates, *n=1337*)

| PROFESSIONAL DEGREES | | ACADEMIC DEGREES | |
|---|---|---|---|
| Business | 5%[1] | | |
| DVM | 3% | | |
| Law | 5% | Academic Masters | 21% |
| MD | 5% | Doctorates | 5% |
| Teaching Credentials | 20% | Other | 6% |
| Other | 9% | | |

[1]Includes MBAs, MPAs, and masters degrees in Management, Accounting and Business Administration.

The highest degrees attained by 1973 graduates are shown in Table 2. Over half (52%) of the graduating class now holds a graduate degree of some kind, with greater proportions of males than females holding each type of advanced degree except teaching credentials.

For most undergraduate fields of study, the highest degree attained by women is a teaching credential, whereas for men this pattern does not apply. In Social Science and Letters, where teaching credentials predominate, the most common (highest) degree held by women was a teaching credential; for men, a law or masters degree. Table 3 shows that the acquisition of degrees higher than teaching credentials and masters degrees is far more common for men than women. In particular, men with DVMs outnumber women 3 to 1, with doctorates 4 to 1, and with MDs 7 to 1.

[1]Because only 59% of 1973 graduates continued their studies, we may infer that 20% of graduates undertook more than one kind of degree [(47 + 32) - 59 = 20]. Few graduates undertook more than two degrees.

[2]Actual acceptance statistics provided by UC Davis Advising Services were used to compute the 5% figure instead of survey results, which showed only 3% of graduates undertaking MDs. The statistics used were acceptances of 1979 graduates into the 1979-80 and 1980-81 medical school classes in the U.S. This estimate is low, because some graduates continue to apply to medical school for four or five years. We estimate that 93% of the 1979 graduates who will ever be accepted into medical school are reflected in the 5% statistic. The 5% of graduates going to medical school represents a 54% acceptance rate of Davis graduates applying to medical school. The national average is 47%.

TABLE 2

HIGHEST DEGREES EARNED BY 1973 GRADUATES

-By Sex-

(In percent of graduates)

| DEGREE | MALES *(n=680)* | FEMALES *(n=657)* | TOTAL *(n=1337)* |
|---|---|---|---|
| Bachelors | 44 | 51 | 48 |
| Teaching Credential | 7 | 21 | 14 |
| Masters | | | |
| Academic | 18 | 13 | 15 |
| Professional | 8 | 8 | 8 |
| Law | 8 | 1 | 4 |
| Doctorate | 4 | 1 | 2 |
| Veterinarian (DVM) | 4 | 1 | 3 |
| Physician (MD) | 4 | 1 | 2 |
| Other | 3 | 3 | 4 |

TABLE 3

HIGHEST DEGREE ACQUIRED BY 1973 GRADUATES

-By Sex-

(In percent of each kind of degree)

| DEGREE | *n* | FEMALE | MALE |
|---|---|---|---|
| Teaching credential | *189* | 73 | 27 |
| Masters | *309* | 43 | 57 |
| Academic | *205* | 41 | 59 |
| Professional | *104* | 48 | 52 |
| Law | *59* | 10 | 90 |
| Medicine (M.D.) | *30* | 13 | 87 |
| Veterinarian (DVM) | *36* | 25 | 75 |
| Doctorate | *52* | 21 | 79 |
| Academic | *26* | 39 | 61 |
| Professional | *26* | 4 | 96 |

## Graduate Degree Fields

The most prevalent fields in which 1973 graduates earned higher degrees were Education (22% of advanced degrees--mostly teaching credentials), Health Professions (20% of advanced degrees--largely veterinarians and physicians), and Law (9%). Appendix E shows that degrees in Biological Sciences and Engineering were also quite frequent (over 30 degrees each).

## Choice of Schools for First Postgraduate Degrees

The University of California has remained the most frequently attended graduate school among the graduating classes of 1973, 1976, and 1979. Almost half the graduates of these three years chose a UC campus for their first postgraduate degree, with UC Davis enrolling three-fourths of these UC-bound graduates (see Appendix F). The choice of other institutions for first-time graduate study has not varied much among the three graduating classes, except that the proportion of graduates choosing CSUC campuses has declined from 20% (1973 graduates) to 14% (1976 graduates) to 11% (1979 graduates). This decline has been offset by increases in the number of graduates attending UC Davis and a category of miscellaneous schools (including Hastings School of Law, a UC affiliate).

## Preparedness for Graduate/Professional School

Because both students and faculty consider graduate school preparation to be an important goal of undergraduate education, the survey asked respondents to estimate how well UC Davis prepared them for postgraduate studies. Preparedness ratings by graduates are shown in Table 4. Ratings range from 1 (very well prepared) to 5 (poorly prepared), and most graduates rate their preparation for graduate studies as "more than adequate." The mean ratings are 2.0 for 1973 graduates and 1.9 for 1979 graduates, where 1 = very-well-prepared and 2 = more-than-adequately-prepared.

The differences between preparedness ratings among undergraduate fields of study are small: the range is 1.8 (Physical Sciences) to 2.1 (Interdisciplinary) for 1973 graduates who have continued their educations. For graduates of both years, Science majors rate their preparation slightly higher than Social Science or Humanities majors, probably because of the specificity of scientific training and the similarity between undergraduate and graduate studies common for technically trained students. Graduates who have attended

TABLE 4

GRADUATES' RATINGS OF HOW WELL UC DAVIS PREPARED THEM

FOR POSTGRADUATE STUDIES

(In percent of graduates who continued their educations)

| HOW WELL PREPARED | GRADUATES OF 1979 (n=453) | 1973 (n=840) |
|---|---|---|
| Very Well | 43 | 38 |
| More Than Adequately | 28 | 28 |
| Adequately | 27 | 31 |
| Less Than Adequately | 1 | 2 |
| Poorly | 1 | 1 |

professional schools rate their preparation as "more than adequate" or better (1.4--medical school, 1.9--veterinary school, and 2.1--law school).

There are many instances of high preparedness ratings by students whose undergraduate majors bear no apparent relationship to graduate studies. Three examples include an Art major who went into Pharmacy, an English major studying to be an accountant, and a Geography major pursuing a degree in counseling. This response is not unexpected, because an undergraduate major need comprise only a small fraction of the 180 units needed for graduation. Also, ratings of graduates' preparation for graduate/professional school may reflect preparation not only in the subject matter of the advanced degree field, but in the "how to think" and "how to proceed" skills needed for graduate work.

One common topic of conversation among students is whether and to what degree college grades measure learning. In this survey, graduates seem to indicate that they do, or at least that they BELIEVE that grades measure learning. There is a small but significant correlation ($r = .21$) between graduates' ratings of their preparation for postgraduate studies and their undergraduate GPAs.[1] The correlation increases if only the graduates holding the most advanced degrees are considered. Table 5 shows the correlation between GPA and preparation ratings for the 1973 graduates holding seven kinds of advanced degrees.

[1] For 1979 graduates, $r = .21$, $p < .001$; for 1973 graduates, $r = .19$, $p < .001$. The self-reported GPAs of recent graduates who undertook postgraduate degrees ranged from 2.2 to 4.0.

TABLE 5

CORRELATIONS BETWEEN UNDERGRADUATE GPA

AND GRADUATES' RATINGS OF THEIR PREPARATION FOR POSTGRADUATE STUDIES

-1973 Graduates-

| HIGHEST DEGREE HELD | CORRELATION BETWEEN UNDERGRADUATE GPA AND RATINGS OF PREPARATION FOR POSTGRADUATE STUDIES | | |
|---|---|---|---|
| | r | p | n |
| Teaching credential | .04 | =.29 | 150 |
| Academic masters | .10 | =.09 | 207 |
| Professional masters | .23 | <.05 | 89 |
| Law (JD) | .21 | =.07 | 60 |
| Veterinary (DVM) | .34 | <.05 | 36 |
| Academic doctorate (PhD) | .49 | <.001 | 25 |
| Professional doctorate (e.g., DDS) | .47 | <.01 | 27 |

Thus, graduates holding degrees which typically require three or more years of schooling show a stronger relationship between GPAs and perceived level of preparation than do graduates who undertook less ambitious degree programs. The correlations seem to increase with the selectivity of degree programs. An anomaly occurs in the MD category (not listed). Among MDs there is no significant correlation whatsoever between ratings of preparation for postgraduate studies and undergraduate GPA (r = .04). This result may be due to the unusually narrow range in GPAs among MDs (all above 3.00). Within this restricted range, no relationship exists.

Note that these figures refer to graduates' PERCEIVED level of preparation. Because the perception itself may be partially based on an individual's undergraduate GPA, such a relationship might be expected. Nonetheless, it is interesting that little relationship exists between the two measures among people holding masters degrees and teaching credentials. These findings may reflect differences among students who undertake the various degrees: for instance, graduates may have had differing levels of concern about grades during college, or differing levels of belief in the validity of college grades. Or, the finding may reflect an underlying relationship between high grades in undergraduate studies at UC Davis and success in some kinds of postgraduate studies.

One other measure of preparedness for postgraduate studies is performance on tests used for admission to graduate/professional schools. The tests most widely used by schools to help document applicant qualifications are the Graduate Record Examination (GRE), the

Graduate Management Admission Test (GMAT), the Medical Colleges Admission Test (MCAT), and the Law School Admission Test (LSAT). Typically, one or more of these tests is taken by each college student who plans to apply to graduate/professional school. Table 6 shows recent UC Davis and national averages on these four tests, including breakdowns showing GRE Verbal, Quantitative, and Analytical scores. Note that the GRE Quantitative scores and the GMAT scores are particularly high, compared to National averages: both are over a half a standard deviation above the national mean.

TABLE 6

COMPARISON OF UC DAVIS AND NATIONAL SCORES

ON TESTS USED FOR ADMISSION TO GRADUATE AND PROFESSIONAL SCHOOLS

| STUDENTS FROM: | MEAN SCORES ON ADMISSIONS TESTS[1] | | | | | |
|---|---|---|---|---|---|---|
| | GRE[2] | | | GMAT[3] | MCAT[4] | LSAT[5] |
| | Verbal | Quantitative | Analytical | | | |
| UC Davis | 547 | 606 | 582 | 519 | 10.3 | 582 |
| U.S. | 501 | 526 | 510 | 462 | 8.5 | 561 |

1 These are applicant scores. Scores of accepted students are higher.
2 Range of possible scores 200-800, National Standard Deviation (SD): V=126, Q=133, A=131. UC Davis Mean Scores reported 1978-1979, n=678. Sample of National scores, 1977-1979, n=1950.
3 Range of possible scores 200-800, National SD=106. UC Davis scores 1976-1978, n=670. National data 1976-1979.
4 Range of possible scores 1-15. UC Davis Advising Services 1979 data.
5 Range of possible scores 200-800. "Matched scores": test takers who did not have their scores forwarded to Law School are not included.

These relatively high scores are not exactly unexpected, because UC has a selective admissions policy and would be expected to graduate highly qualified applicants for advanced studies. However, there does appear to be a good argument for the influence of University studies on these scores: the self-selected pool of high-achieving graduate school applicants from various colleges is likely to be more homogeneous as to native ability than entering freshmen from those same colleges. The best students graduating from CSUC, for instance, are probably just as intelligent as those graduating from UC, even though CSUC's entrance requirements are lower. If students taking the graduate school entrance exams are similar in ability, then it would be their training that makes the difference in exam scores.

## OCCUPATIONS

Some people believe that college education and jobs are clearly related or, if not, that they at least should be. Others think that knowledge is itself a reward and that education should not be judged by its relation to the job market. Undergraduates vary along this spectrum of opinions: some major in occupationally useful fields, while others undertake studies with little occupational relevance (or at least none at the undergraduate level). In fact, the most important reasons for going to college among UC Davis freshmen may not even be job-related[1]: "learning more about things" was slightly more important to freshmen entering UC Davis in 1976 than preparing for a better job. The importance of career preparation grows as students approach graduation, however, as evidenced by the disproportionate numbers of upper division students seeking career advising from University advisors.

One way for undergraduates to explore the relationship between their academic classwork and possible future occupations is by holding internships while in college. Almost half the 1979 graduates (44%) held an internship of some kind during their undergraduate years. Fields of study whose graduates were most likely to have held internships are: Resource Sciences (75%), Interdisciplinary Studies (67%), and Social Sciences (64%). Most internships were obtained through the UC Davis Work-Learn program, which develops academically-related career experiences both on and off campus. Half the graduates who held internships find them "very significant" in relation to their present occupations, and graduates who held internships are significantly more likely than other students to: 1) have jobs related to their majors and 2) to be working in the career field of their choice. However, these differences between graduates who held or did not hold internships are usually not significant within particular fields of study. Thus, the overriding factor seems to be the field of undergraduate study, not the internship per se.

### Relationships Between Occupations and Undergraduate Majors.

Because undergraduate studies are often designed to prepare students for graduate work rather than for specific occupations, a close relationship does not necessarily exist between occupations of recent graduates and their undergraduate majors. However, when asked how closely related their current occupation was to their undergraduate major, two-thirds of recent graduates and slightly more than half of older graduates described the

[1] The Class of 1980 as Entering Freshmen.

relationship as "high" or "moderate" (see Table 7). This decrease over time (inferred from the differences between the two classes) is probably due to two factors: 1) the acquisition of advanced degrees in fields not closely related to undergraduate studies, and 2) the cumulative effects of employment opportunities and work experience on occupational interests and attainments. Or alternatively, the recent graduates may have chosen undergraduate studies that were more career related.

TABLE 7

RELATIONSHIP BETWEEN OCCUPATION

AND UNDERGRADUATE MAJOR

(In percent of full-time workers)

| RELATEDNESS OF OCCUPATION TO MAJOR | GRADUATES OF: 1979 *(n=780)* | 1973 *(n=959)* |
|---|---|---|
| High | 42 | 32 |
| Moderate | 24 | 23 |
| Slight | 16 | 20 |
| None | 18 | 24 |

Undergraduate fields with high numbers of graduates working in jobs that are NOT related to their majors are Fine Arts (46%), Letters (35%), and Social Sciences (29%). Occupations in these fields, if not major-related, are usually in finance, trade, administration, or clerical fields.

Is it important to graduates' job satisfaction that their jobs and college majors be closely related? Apparently not, because there is only a small relationship between job/major relatedness and overall job satisfaction among recent graduates, and none at all among the older alumni ($r = .24$ and $.09$ for 1979 and 1973 graduates. $p < .01$). In fact, when job/major relatedness was analyzed statistically in combination with the seven measures of job satisfaction used in the survey, it was not related to overall job satisfaction at all. The fact that job/major relatedness is unimportant to graduates' job satisfaction is not surprising because many University courses of study prepare students for occupations in only a general way. Thus, occupational ambitions can often be satisfied without directly using any specific tasks or procedures learned in college. Results would no doubt be

different among graduates of a school that trained the majority of its students for specific occupations.

Deciding on a Career Field and Finding Employment in that Field

Approximately one out of ten graduates of both years who are working full-time have not yet chosen a career field. Table 8 shows that recent graduates of Social Science, Animal Science, and humanities are more likely to be undecided about a career field than other graduates, especially those in Engineering.

TABLE 8

PERCENT OF EMPLOYED GRADUATES WHO HAVE NOT CHOSEN A CAREER FIELD

BY UNDERGRADUATE FIELD OF STUDY

(In percent of full-time workers in each field of study)[1]

| YEARS SINCE GRADUATION | FIELD OF STUDY | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | An Sci | App Econ | Food Sci | Plant Sci | Bio Sci | Res Sci | Engi-neer-ing | Human-ities | Phys Sci | Soc Sci | Inter-disc | Total |
| One | 19 | 12 | 7 | 8 | 14 | 4 | 2 | 20 | 7 | 22 | 13 | 12 |
| Seven | 4 | 0 | 3 | 9 | 4 | 9 | 2 | 6 | 6 | 8 | 3 | 6 |

[1]All entries represent at least 30 graduates, except for: 1979 Phys Sci (n=14), 1973 App Econ (n=14), 1973 Plant Sci (n=21).

The older graduates are more likely to have decided on a career field, but 6% of them are still undecided. It may be that some percentage of workers will always be undecided on a career field, either because they never had a clear preference or because they decide against a prior preference. The survey contained a few examples of graduates with jobs outside their career field that were nonetheless highly satisfying. For example, a 1979 Russian major who is administering a refugee settlement program, but not working in her preferred career field, says:

*"Basically my job is a product of my own efforts. Since the job has been molded by me, I am rather satisfied with the work I do. My major in Russian is practical and very useful. It was instrumental in getting me my present job."*

More often, however, the jobs people describe as outside their career field are unsatisfying, especially those in nonmanagerial sales, services, or clerical work.

Of graduates who have decided on a career field, the majority are employed in their chosen field (84%[1]--1973 and 76%--1979). As Appendix G shows, these figures vary greatly by undergraduate field of study. Graduates of the Humanities, Biological Sciences, and Social Sciences have the most difficulty finding work in their chosen fields; Engineers, Applied Economists, and Food/Plant/Resource/ Physical Scientists have the least difficulty, as was shown in the earlier graduate survey.

Increased time in the work force improves the chances for employment in preferred career fields for graduates of most disciplines, with Applied Economics and Animal/Biological Science graduates showing the most improvement over time. The exception to this trend is for Plant Scientists, who in both graduate surveys show a decline over time in finding work in their chosen field and in job satisfaction. This pattern may reflect a tendency among some of those graduates to obtain jobs that are initially satisfying but lead nowhere, or it may indicate that their aspirations are especially high. Note that some graduates use a fairly stringent definition of "field of choice." Some respondents do not consider jobs that are highly related to undergraduate majors to be in their field of choice. The response may suggest a change in field of choice since college.

Preparedness for Occupations.

Recent graduates were asked how well UC Davis had prepared them for their current occupations. The responses of full-time workers range from 1 (very well prepared) to 5 (poorly prepared). The average rating is 2.6, midway between "well prepared" and "adequately prepared." Graduates who work in the field of their choice or in a field related to their undergraduate major feel better prepared for their jobs than those who work in unrelated or nonpreferred occupations. The average preparedness rating by graduates working in their field of choice is 2.3; among those whose occupations are highly or moderately related to their majors, the average rating is 2.2.

Job Satisfaction and the Factors that Contribute to It

Overall job satisfaction of graduates is quite high, with 1979 and 1973 graduates

[1]The telephone survey to nonrespondents indicates that the 1973 statistic may not be representative of the graduating class, i.e., it may be somewhat high. Among nonrespondents contacted by telephone, only 78% of those who had decided on a career field were employed in their preferred field. The true percentage for this graduating class may be somewhere between 78% and 84%.

giving their jobs a rating of 2 (satisfied) on a scale from 1 (very satisfied) to 5 (very dissatisfied). In addition to overall job satisfaction, graduates were also asked about their satisfaction with seven aspects of their employment: the challenge, career potential, advancement potential, the people they work with, salary and benefits, physical working conditions, and location. Career potential and advancement potential seem, from graduates' responses, to measure the same factor (r=.72); for this reason advancement potential is not discussed separately below.

Recent graduates are most satisfied with the physical working conditions (1.9), the people (1.8), and the location (2.0) of their employment; they are also satisfied with the challenge (2.1) and the career potential (2.3). Salary and benefits receive a 2.6 rating, closer to the "neutral" response. As would be expected from national research on job satisfaction, satisfaction is higher among the older graduates who have been in the work force longer. Challenge and location (1.8) are the highest-rated aspects of the jobs held by 1973 graduates.

The aspect of job satisfaction most predictive of overall job satisfaction for all graduates is challenge. If a graduate is satisfied with the challenge provided by a job, he or she tends to be satisfied with the job itself. When the six aspects of job satisfaction are combined as predictor variables in a multiple regression with overall job satisfaction as the outcome, by far the most influential predictor variable is challenge. For 1979 graduates, the second most important factor is people; for 1973, it is career potential. Other satisfaction factors are significant in the regression equations for each year, but they add little to explain overall job satisfaction (see Appendix H). This analysis should not necessarily be interpreted to mean that such factors as salary, location, and working conditions are unimportant to UC Davis graduates. It may simply be that once some basic or minimal expectations for salary and a pleasant working environment are met, the challenge involved in a job assumes primary importance.

These results are consistent with the 1977 survey, which asked graduates why they were or were not satisfied with their jobs. Respondents who were satisfied most often said that their work was challenging, interesting, intrinsically rewarding, or required creativity. The most frequent reasons given for disliking a job was that it was routine, unchallenging, required no creativity, or carried no responsibility.

Employer Activities.

National research[1] shows that the primary occupations of recent American college graduates are in the areas of business and teaching, and that about one-third of recent graduates work for some level of government--federal, state or local. The full-time employment of recent UC Davis graduates is consistent with these figures: the largest groups of employers are firms engaged in manufacturing (20%), trade (13%), or finance/ insurance/real estate (9%). Schools, including colleges and universities, are also important employers (12%). Among the older graduates, the main employers are schools (employing 21% of 1973 graduates), manufacturers (14%), and health services (12%). The majority of graduates of both years work for private firms; self-employment and government employment are more prevalent among the graduates who have been out of college longer than among recent graduates (see Table 9). Even so, about one in three recent graduates work for the government.

TABLE 9

TYPE OF EMPLOYER OF 1979 AND 1973 GRADUATES

(In percent of graduates working full-time)

| YEARS SINCE GRADUATION | *n* | TYPE OF EMPLOYER Public | Private | Self-Employed |
|---|---|---|---|---|
| One | 778 | 29 | 68 | 3 |
| Seven | 956 | 40 | 51 | 9 |

Occupations.

The largest single occupational groupings of UC Davis graduates reflect the employer categories listed above. They are: engineers (many of whom work for manufacturing firms); managers or analysts in finance/ purchasing/insurance and retail/wholesale trade, and

[1] Occupations of Recent College Graduates, (Draft, April 1981) National Center for Educational Statistics. This document reports a 1978 survey of 297 colleges and universities offering bachelors or masters degrees. The survey had an 87% response rate (9592 graduates). Statistics include part-time workers.

teachers. Table 10 and Appendix I list the occupations of graduates by sex and field of study. The occupations of 1979 graduates with the greatest differences in the representation of males and females are:

engineers (9% of females and 28% of males were engineers);
personnel and social welfare workers (6% of women and 2% of men),
elementary and high school teachers (5% of women and 2% of men), and
clerical workers (11% of women and 3% of men).

In addition, there are differences for the 1973 graduates in the proportions of men and women working in manufacturing (3% of women and 8% of men) and law (1% of women and 9% of men).

Salaries.

The average (mean) 1980 salary for 1979 graduates working full-time is $14,105. Men earn almost $3,000 per year more than women ($15,566 compared to $12,630); exceptions to this pattern occur mainly among physical scientists, resource scientists, administrators in manufacturing firms and social welfare agencies, artists/entertainers, and library workers. In these occupations, women earn more than men. Salaries of recent graduates are shown in Appendix J for men and women in 27 occupational groupings.

Salaries for the same graduates are shown in Figure 1 for eleven undergraduate fields of study. The only undergraduate field whose women graduates earn more than men was Engineering: some male Engineering graduates work in professional jobs whose salaries are lower than typical engineering jobs (e.g., agricultural foreman). Note that when occupations (Appendix J) as opposed to fields of study (Figure 1) are examined, the situation is reversed: women working as engineers do not earn as much as men working as engineers.

Among the older (1973) graduates, the average (mean) yearly income is $20,963. Men earn $23,775 and women earn $17,237. The differential is related to the tendency noted in the preceeding chapter for men to acquire the degrees which lead to higher earnings. Graduates who have not acquired an advanced degree earn $20,643, holders of teaching credentials $15,250, masters degree recipients $21,869, PhDs $21,025, and professional doctorates (mostly physicians, lawyers, and veterinarians) $27,697. The financial sacrifice involved in an elementary or secondary teaching career is shown by the $5,000 differential between salaries earned by holders of teaching credentials and bachelors degrees alone (teachers earn less). The only undergraduate field whose graduates earn more with teaching

TABLE 10

OCCUPATIONS OF 1973 AND 1979 GRADUATES WORKING FULL-TIME

-By sex[1]-

| OCCUPATION | GRADUATES OF 1973 M | F | T | 1979 M | F | T |
|---|---|---|---|---|---|---|
| Accountant or auditor | 13 | 10 | 23 | 4 | 6 | 10 |
| Administrator, analyst, agent in: | | | | | | |
| construction | 9 | 1 | 10 | 8 | 1 | 9 |
| government, not elsewhere listed | 8 | 0 | 8 | 1 | 2 | 3 |
| manufacturing | 31 | 4 | 35 | 8 | 6 | 14 |
| program evaluation | 1 | 6 | 7 | 1 | 0 | 1 |
| service industry | 7 | 4 | 11 | 4 | 0 | 4 |
| transportation | 7 | 7 | 14 | 2 | 4 | 6 |
| Artist (painting, sculpture, etc.) | 3 | 1 | 4 | 1 | 2 | 3 |
| Athlete and other sports occupation | 2 | 0 | 2 | 0 | 0 | 0 |
| Business: | | | | | | |
| buyer, purchasing agent | 3 | 3 | 6 | 4 | 8 | 12 |
| credit management, budget | 11 | 13 | 24 | 12 | 15 | 27 |
| finance, insurance, real estate | 20 | 14 | 35 | 13 | 15 | 28 |
| miscellaneous agent or appraiser | 2 | 2 | 4 | 4 | 1 | 5 |
| public relations or advertising | 0 | 5 | 5 | 1 | 7 | 8 |
| sales, distribution manager | 19 | 22 | 41 | 16 | 29 | 45 |
| sales worker, non-managerial | 13 | 11 | 24 | 15 | 14 | 29 |
| Chemist | 6 | 0 | 6 | 6 | 7 | 13 |
| Clergy or religious worker | 1 | 2 | 3 | 3 | 2 | 5 |
| Clerical worker | 3 | 26 | 30 | 12 | 44 | 56 |
| Commercial artist, designer, photographer | 2 | 10 | 12 | 4 | 15 | 19 |
| Computer programmer, analyst, technician | 6 | 8 | 14 | 11 | 1 | 12 |
| Construction craftsman | 8 | 2 | 10 | 12 | 1 | 13 |
| Dentist | 13 | 0 | 13 | 0 | 0 | 0 |
| Dietician | 0 | 8 | 8 | 0 | 3 | 3 |
| Economist | 2 | 0 | 2 | 1 | 0 | 1 |
| Educator: | | | | | | |
| agricultural, home ecor | 0 | 1 | 1 | 1 | 1 | 2 |
| college or university | 9 | 12 | 21 | 0 | 1 | 1 |
| elementary | 11 | 41 | 52 | 2 | 9 | 11 |
| handicapped | 0 | 10 | 10 | 0 | 0 | 0 |
| secondary | 22 | 25 | 47 | 2 | 4 | 6 |
| vocational | 0 | 0 | 0 | 0 | 1 | 1 |
| other | 5 | 12 | 17 | 1 | 3 | 4 |

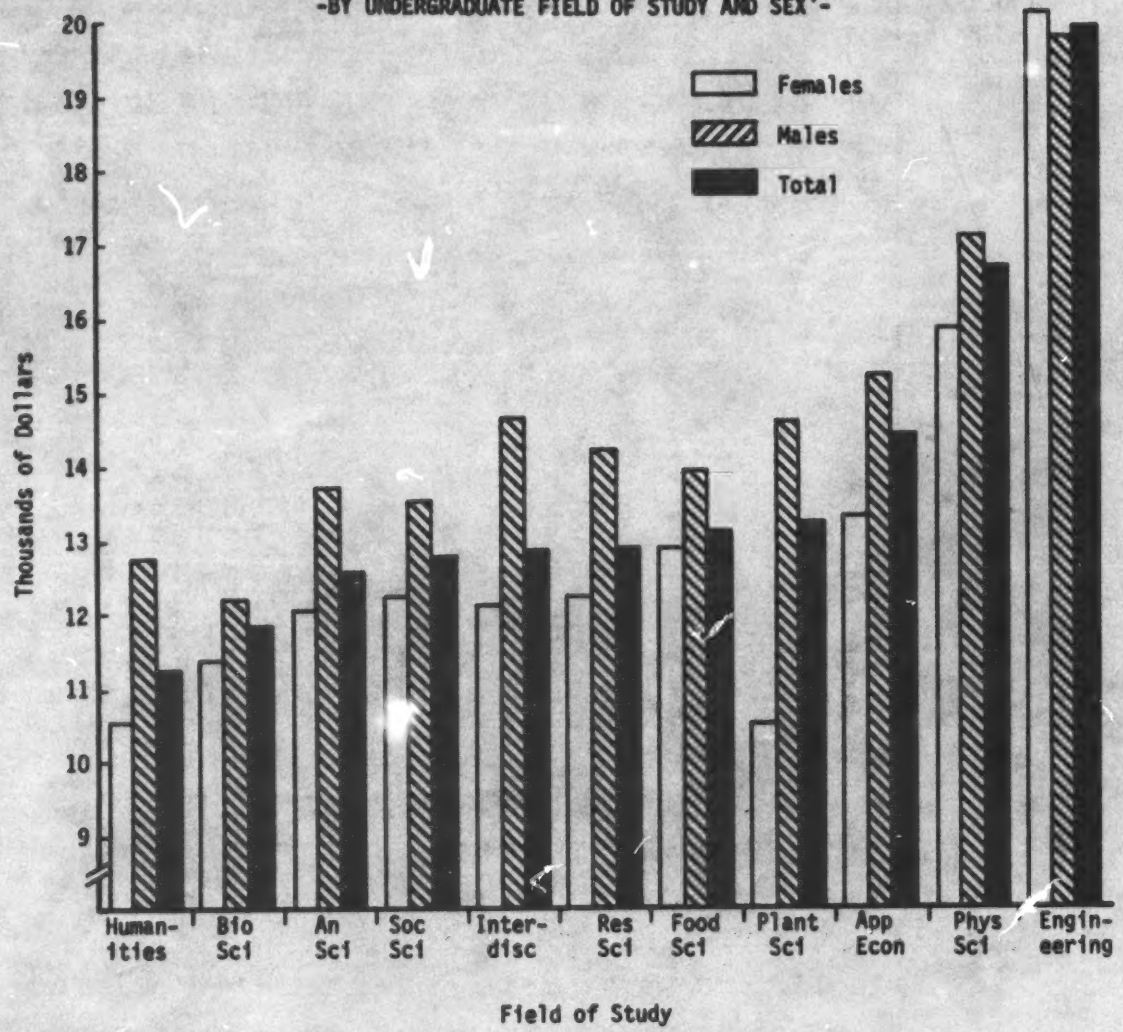
| OCCUPATION | GRADUATES OF 1973 M | F | T | 1979 M | F | T |
|---|---|---|---|---|---|---|
| Engineer: | | | | | | |
| aeronautical | 2 | 1 | 3 | 4 | 0 | 4 |
| chemical | 5 | 1 | 6 | 9 | 3 | 12 |
| civil | 24 | 2 | 26 | 29 | 9 | 38 |
| electrical | 16 | 2 | 18 | 28 | 6 | 34 |
| mechanical | 15 | 1 | 16 | 15 | 3 | 18 |
| other | 13 | 4 | 17 | 18 | 11 | 29 |
| Farm, ranch, fisheries, forest manager | 23 | 1 | 24 | 20 | 4 | 24 |
| Landscape architect or designer | 2 | 1 | 3 | 3 | 4 | 7 |
| Lawyer | 47 | 3 | 51 | 0 | 0 | 0 |
| Legal technician or other law | 3 | 3 | 6 | 4 | 2 | 6 |
| Librarian, archivist | 1 | 6 | 7 | 0 | 2 | 2 |
| Laborer (unskilled) | 6 | 5 | 11 | 13 | 12 | 25 |
| Mathematician, statistician | 0 | 0 | 0 | 0 | 1 | 1 |
| Medical or dental technologist | 5 | 11 | 16 | 3 | 1 | 4 |
| Museum curator or technician | 0 | 0 | 0 | 1 | 0 | 1 |
| Nurse | 4 | 5 | 9 | 0 | 1 | 1 |
| Performing artist, muscian, entertainer | 1 | 2 | 4 | 4 | 1 | 5 |
| Personnel worker | 3 | 16 | 19 | 3 | 7 | 10 |
| Pharmacist | 4 | 1 | 5 | 0 | 0 | 0 |
| Physician or surgeon | 4 | 0 | 4 | 0 | 0 | 0 |
| Police, fire | 5 | 0 | 5 | 0 | 0 | 0 |
| Psychologist | 1 | 2 | 3 | 0 | 1 | 1 |
| Public health and misc. health | 15 | 8 | 24 | 11 | 16 | 27 |
| Recreation worker | 0 | 1 | 1 | 4 | 1 | 5 |
| Resource or urban planner | 11 | 6 | 17 | 4 | 8 | 12 |
| Scientific researcher or technician: | | | | | | |
| resource scientist | 8 | 2 | 10 | 2 | 6 | 8 |
| food, nutrition, textile scientist | 5 | 4 | 9 | 3 | 11 | 14 |
| plant scientist (includes winemaker) | 6 | 2 | 8 | 21 | 10 | 31 |
| biological scientist | 13 | 8 | 21 | 12 | 18 | 30 |
| animal scientist | 5 | 2 | 7 | 1 | 9 | 10 |
| Skilled laborer | 8 | 2 | 10 | 12 | 1 | 13 |
| Social or welfare worker | 5 | 20 | 25 | 3 | 15 | 18 |
| Veterinarian | 21 | 8 | 29 | 0 | 0 | 0 |
| Writer, editor, journalist, interpreter | 2 | 2 | 4 | 5 | 6 | 11 |

[1]Totals for each occupation include respondents whose sex is unknown.

FIGURE 1

ANNUAL SALARY OF 1979 GRADUATES EMPLOYED FULL-TIME

-BY UNDERGRADUATE FIELD OF STUDY AND SEX[1]-




[1]Note that some columns represent small numbers of respondents: Humanities (n=24 and 11 for females and males), Bio Sci (34,40), An Sci (21,10), Soc Sci (85,71), Interdisc (34, 16), Res Sci (29,16), Food Sci (58,14), Plant Sci (10,20), App Econ (19,39), Phys Sci (5,9), Engineering (21,98).

credentials than without them is Letters. PhDs do not earn as much as graduates holding masters degrees, although their future earning power may be much higher. Most of the PhDs shown here would only have been out of graduate school for one or two years at the time of the survey. Appendix K shows the incomes of 1973 graduates with various types of degrees by undergraduate field of study.

Income data comparable to that collected in this survey is unavailable at the national or state level because of dissimilar aggregation or census/sampling methods used by various

agencies. Data is available from WLCP&P which compares salary offers to UC Davis bachelor degree candidates who attend on-campus job interviews to comparable national salary offers published by the College Placement Council Salary Survey. Unfortunately, Engineers are the only group of UC Davis students in which a majority (71%) use on-campus recruiting to secure employment after graduation. Thus, they are the only group for which data representative of all salary offers is available. The comparisons between average monthly salary offers by all types of employers to 1979-80 UC Davis and national Engineering students shows that the two groups receive practically identical salary offers.

| ENGINEERING MAJOR | UC DAVIS | NATIONAL |
|---|---|---|
| Chemical | $1827 | $1800 |
| Civil | 1598 | 1549 |
| Electrical & Computer | 1780 | 1690 |
| Materials Science/Mechanical | 1665 | 1731 |
| Mechanical | 1704 | 1700 |

## INTRINSIC REWARDS OF COLLEGE EDUCATION

Ideally, the University should prepare students for more than postgraduate studies and gainful employment; graduates should also be equipped to participate fully in a wide range of intellectual, cultural, and personal activities and interests. To this end, they should be able to reason critically, examine assumptions, function effectively as citizens, and appreciate the arts and culture. These intrinsic intellectual and personal rewards of college education were very important to respondents in the last graduate survey. Those graduates reported that college had brought intellectual and personal development, broader interests, and an increased open-mindedness towards new people and ideas. They described these benefits as the most important aspects of their college experience. However, they also expressed a need for much greater development in written and spoken communication and a broader (more varied) education. Many science graduates, for instance, had discovered new interests of a nonscientific nature since college, and wished they had taken more Humanities and Social Sciences to better understand and enjoy those new interests. Graduates of Humanities and Social Sciences, on the other hand, often reported a need for more analytical and technical skills.

To supplement information on the practical outcomes of college, the present survey asked graduates how much their undergraduate education had contributed to their growth in 13 specific areas of personal and intellectual development. As shown in Table 11, graduates report that their greatest areas of growth were analytic in nature: over 90% of graduates say that problem solving, making logical inferences, understanding written information, and persisting in difficult tasks were important areas of growth during their years at UC Davis. Growth in cultural/aesthetic areas is reported by fewer respondents, but still by more than half of graduates.

TABLE 11

CONTRIBUTION OF COLLEGE EDUCATION TO GRADUATES'

INTELLECTUAL, CULTURAL, AND PERSONAL GROWTH

-1979 Graduates-

| AREAS OF GROWTH | PERCENT SAYING THAT UC DAVIS CONTRIBUTED "very much" OR "somewhat" TO THEIR GROWTH |
|---|---|
| Defining and solving problems | 94 |
| Understanding written information | 93 |
| Recognizing assumptions/making logical inferences/ reaching correct conclusions | 93 |
| Persisting in difficult tasks | 91 |
| Understanding and applying scientific principles and methods | 84 |
| Self-confidence/self-understanding | 84 |
| Leading others | 83 |
| Working cooperatively in a group | 74 |
| Writing effectively | 73 |
| Public speaking | 55 |
| Understanding and appreciating the arts | 51 |
| Understanding people of other ethnic backgrounds | 50 |
| Recognizing rights and responsibilities as a citizen | 50 |

Patterns in these areas of student growth and development were investigated using factor analysis, a statistical technique for finding clusters of related variables. These clusters, or factors, consist of a group of variables (in this case, growth areas) that correlate more highly among themselves than they do with variables not included in the

factors. The four significant factors identified describe four distinct types of students:

1) Problem solver. Graduates of the hard sciences or engineering score high on this factor. They indicate high growth in five analytic areas, listed here in descending order of importance:

recognizing assumptions/making logical inferences/reaching correct conclusions,
defining and solving problems,
understanding and applying scientific principles and methods,
persisting in difficult tasks, and
understanding written information.

2) Culturally-fluent. These graduates indicate relatively high growth in areas that require sensitivity to cultural/aesthetic values and to other people. Humanities and Social Science majors often score high on this factor. Highest areas of growth for these students are:

understanding people of other races and ethnic backgrounds,
recognizing (their own) rights, responsibilities and privileges as citizens,
understanding and appreciating the arts, and
having self-confidence and self-understanding.

3) Leader. Students from a wide variety of fields score high on this factor, which emphasizes skills in group interaction and leadership. The areas of growth that were high for these students relative to others are:

leading and guiding others,
working cooperatively in a group,
speaking in public, and
having self-confidence and self-understanding.

4) Writer. These students emphasize growth in writing skills and in the ability to understand written information. Students with high growth in writing skills are often in Social Sciences or Humanities, especially Letters. The graduates with high growth in understanding written information are in a wide variety of fields.

The factor that most strongly distinguishes among students (i.e., the factor that accounts for the most variance) is the problem solving/analytic factor. This factor accounts for 28% of the variance in growth ratings; whereas the culturally-fluent, leader, and writer factors account for 14%, 9%, and 9% of variance respectively (See Appendix L for the technical aspects of the factor analysis.)

Areas of growth that are important in more than one factor are: 1) self-confidence/self-understanding and 2) understanding written information. Self-confidence/self-understanding is rated as a relatively high growth area by both the culturally-fluent and leaders, but not by problem-solvers or writers. Understanding written information is an

important area for both the problem-solvers and the writers.

## IMPRESSIONS OF UC DAVIS

In addition to reporting their career and educational experiences, graduates were asked for reactions to their college experience: What would they do differently if they could start college over again? Would they choose the same major? Would they attend UC Davis? Most of the comments about what graduates would do differently concern the following:

1) Some graduates say they would undertake a more focused or job-related field of study. These people either need supplementary job training in their current employment, or they are not satisfied with the employment prospects in their major field. For instance, a 1973 Psychology major who is director of volunteer services in a social service agency says,

> *"I would have taken more research, statistics, and applied psychology. These are the skills I need now."*

A woman who is working as production control manager in an electronics manufacturing firm says of her Biological Sciences major,

> *"I would definitely change my major. It's good for people absolutely committed to graduate work, but not for anyone interested in working right after graduation."*

However, many other graduates feel they should have broadened, rather than narrowed, their studies; these are usually people who are professionally secure and/or who especially value the growth or enjoyment aspects of college.

2) Graduates would look for more career counseling, technical courses, and marketable skills. For instance, a woman who graduated in International Relations and is working as a computer programmer says,

> *"I would try to be more aware of the real business world. I had several career interests in college. I have ended up in data processing, so my minor (Mathematics) serves me better than my major."*

A 1973 Geology graduate working as a cartographic technician with the U.S. Geological Survey says,

> *"I majored in Geography with the intention of becoming a city or regional planner. I did not know that jobs were virtually non-existent in that field."*

3) Many graduates would not change anything. For instance, a 1973 English graduate who is a lawyer with a private firm says,

> *"The old man in me (I'm 29) says I'd study harder and be a 'red hot' student. I think the more reasonable response is that I wouldn't do anything very differently."*

A 1979 English graduate who is working as an editor in an electronics manufacturing firm says,

> *"I would do nothing differently. I learned (a great deal) from all the mistakes I made."*

4) Other changes that graduates recommend are: using financial aid rather than working during the school year, working harder or (for other individuals) working less, and getting to know more professors.

About three-fourths of graduates say they would definitely or probably attend UC Davis if they could start college over again, and about a tenth say they would definitely or probably not. Others are uncertain (see Table 12). Unfortunately, due to space limitations the questionnaire did not ask for explanations of this response.

TABLE 12

PERCENT OF GRADUATES WHO WOULD ATTEND UC DAVIS AGAIN

| RESPONSE | GRADUATES OF: 1979 *(n=1328)* | 1973 *(n=1348)* |
|---|---|---|
| Definitely yes | 39 | 47 |
| Probably yes | 36 | 33 |
| Uncertain | 15 | 12 |
| Probably no | 8 | 7 |
| Definitely no | 2 | 2 |

A related question asked whether graduates would choose the same major again. Seventy percent of recent graduates say they would, 9% are uncertain, and 21% would probably or definitely not. Fewer of the older graduates would choose the same major, usually because of changing career interests. The most common reasons given are good (or poor) career prospects, and the enjoyment or challenge of a particular field of study. Appendix M

shows the percent of graduates who would choose the same major for 96 undergraduate majors. Typical comments are shown below:

YES (They would choose the same major again.)

"*Come what may, I am a threatre nut.*" - a 1973 Dramatic Arts graduate working as an actress and typist.

"*I enjoy chemistry and how it relates to real world problems.*" - a chemist in a computer manufacturing firm.

UNCERTAIN

"*I might choose to major in philosophy rather than economics. The purpose of an undergraduate education is to acquire a broad-based education.*" - an attorney who graduated in 1973.

NO

"*Although I am interested in the subject, I have found it to be something I will not want to do for 40 hours/week for the rest of my life.*" - a youth minister who graduated in 1979 with a Plant Science major.

"*Psychology is pretty impractical in the real world unless you go on to get an advanced degree. I would probably write my own major, one which would help me get a job.*" - a high school career counselor who graduated in 1973.

## CONCLUSION

The evidence in this report of continued educational pursuit by 1973 and 1979 graduates is consistent with earlier studies. The 1977 survey of UC Davis graduates indicated that 36% of 1976 graduates were attending graduate or professional school one year after graduation; the comparable figure for 1979 graduates is 33%. Apparently both classes have similar propensities to continue into graduate school immediately after receiving their bachelor's degree. Results are also consistent with a 1977 survey of students who entered the University of California in 1970.[1] That study reports that 60% of UC graduates undertake further educational study within two or three years of graduation. Taken together, the present and past Davis surveys show that within three years of graduation, 60% of 1973

[1] Seven Years Later, Education and Work: A 1977 Survey of Students Who Entered the University of California in 1970; C. Robert Pace and Carolyn Rosenstein; UCLA; June 1978.

graduates undertake additional education, and that seven years after graduation the proportion rises to 67%.[1]

Because two surveys of Davis graduates have been conducted, it is possible to compare two graduating classes at the same stage in their careers. Comparison of 1979 and 1976 graduates one year after graduation shows that the two classes are equally likely to hold professional jobs. Among full-time workers, 73% of 1979 graduates and 71% of 1976 graduates held such positions (as opposed to clerical or service jobs). More of the recent class, however, are working in the career field of their choice (76% versus 63%). As noted above, roughly equal proportions (about a third) of both classes are enrolled in educational studies a year after graduation.

Comparison of the 1973 graduates four and seven years after graduation shows substantial gains in both educational attainment and work. Graduates holding advanced degrees now comprise 52% of their class, as opposed to 35% three years ago; the percent taking graduate coursework has risen from 60% to 67%; and the percent of full-time workers who are employed in their preferred field has risen from 75% to 84%. Also, the percent employed in professional jobs has risen from 80% to 92%.

Over three-fourths of 1973 graduates now say they are satisfied with their jobs in general as well as with the challenge involved, the location in which they work, and the people with whom they work. Only 9% are dissatisfied with their jobs. About two-thirds are satisfied with the salary, and another 20% are "neutral," meaning they are neither satisfied nor dissatisfied. The mean salary of 1973 graduates in full-time jobs rose from about $13,000 to $21,000 in the last three years. These figures show the influence of normal career advancement plus the influx of graduates who have acquired advanced graduate and high-paying professional degrees.

In contrast to the 1973 graduates, most of whom are well established in professional careers, many recent graduates are in a time of transition and adjustment. Some graduates with technical backgrounds or areas of knowledge in high demand by employers have quickly found a comfortable nitch in the working world. Others with generalist educations or uncertain career goals are faced with the task of defining functional areas of competence with no obvious connection to college coursework and of matching those skills with employers. Even for the most employable graduates, many initial jobs are either exploratory

[1] The 1977 survey of graduates surveyed the classes of 1976 and 1973; the present survey is of 1973 and 1979 graduates. Thus comparison is possible between one class (the class of 1973) at two points in time, and between two classes (those of 1976 and 1979) at the same point in their careers (one year after graduation).

or temporary in nature. This survey records many recent alumni in this period of transition and exploration, a factor to be kept in mind when interpreting their responses. The information presented here does not necessarily reflect permanent occupational choices or long run employment and educational trends for these graduates.

Of course a full assessment of education and work cannot be made until education ceases, and the educations of many graduates in this survey are far from complete. Education for the professions is just beginning for 1979 graduates, and continues for many of the 1973 graduates. A few will no doubt postpone their graduate studies even further until families are begun or raised. The graduates who have already continued their schooling give a consistently positive evaluation of the their preparation for postgraduate education. This assessment is associated with self-reported growth by over 90% of graduates in areas related to critical thinking and task accomplishment. Thus, whether they attend graduate school or not, students say that the skills necessary for graduate studies are important areas of growth during college. These skills are, of course, also important for employment, occupational development and personal growth. Self-confidence and self-understanding, leadership, persistence in difficult tasks--these are all benefits of a college education that can lead to responsible and satisfactory lives. Most would agree that these and other benefits described in this report encompasses the most important aims of a college education.

APPENDIX A

# S U R V E Y  O F  G R A D U A T E S

## UNIVERSITY OF CALIFORNIA, DAVIS

*For each question, place an X in the box that corresponds to the most appropriate alternative or write your response in the space provided. Please disregard the small numbers that appear throughout the questionnaire. We will use them to code your responses.*

### A. EDUCATION

1/

1. Have you taken any graduate level courses since receiving your bachelor's degree? 5
( )yes ( )no

2. Are you currently enrolled in an educational program for which you will be awarded a degree, license, or credential? 6
( )yes ( )no If no, skip to question 3.

7-8

a. Degree, license, or credential _____ Major field _____ 9-11 12-13

Institution _____ State _____ 14

b. Are you a ( ) full-time or ( ) part-time student? 15

3. List any graduate degrees, professional degrees, or teaching credentials which you hold.

| Degree | | Institution | | State | Major Field | |
|---|---|---|---|---|---|---|
| _____ | 16-17 | _____ | 18-19 | _____ 20 | _____ | 21-23 |
| _____ | 24-25 | _____ | 26-27 | _____ 28 | _____ | 29-31 |

4. How well did UCD prepare you for your graduate education? 32

( )very well ( )more than adequately ( )adequately ( )less than adequately ( )poorly ( )n/a

5. List any state-issued licenses or credentials which you hold (e.g., nurse, lawyer, building contractor). 33-34

_____ 35-38

### B. CURRENT EMPLOYMENT

IF YOU ARE NOT CURRENTLY EMPLOYED, PLEASE CHECK HERE ( ) AND SKIP TO SECTION C. 40

1. What is your current occupation? (Use a descriptive title; e.g., computer programmer, graphic artist, secretary, law clerk, real estate agent).

_____ 41-43

2. Are you presently employed ( ) full-time or ( ) part-time? 44

3. Is your current employment part of a graduate training program? ( )yes ( )no 45

4. In what type of organization are you employed? 46
( )public or governmental ( )private ( )self-employed

5. What is the nature of the organization's activity?
(e.g., architectural consulting, electronics manufacturing, education)

_____ 47-48

6. What is your ANNUAL salary (to the nearest $100)? _____ 49-51

7. Is this position in the career field of your choice?

( )yes ( )no ( )you have not chosen a career field 53

8. How well did UCD prepare you for your present occupation?

( )very well ( )more than adequately ( )adequately ( )less than adequately ( )poorly 54

9. How closely related is your current occupation to your major at UCD?

( )highly related ( )moderately related ( )slightly related ( )not related 55

10. Indicate your satisfaction with the following aspects of your present job using the following scale. 56

*1=very satisfied, 2=satisfied, 3=neutral, 4=dissatisfied, 5=very dissatisfied* 57

| | |
|---|---|
| _____ challenge | _____ people you work with 58 |
| _____ location | _____ physical working conditions |
| _____ salary and benefits | _____ career potential 59 |
| _____ advancement potential | _____ overall satisfaction with your job 60 |

11. Explain your overall reaction to your job--why you are, or are not, satisfied. 61

62

63

12. What further training needs do you have in your present job?

64-66

## C. THE COLLEGE EXPERIENCE

1. If you could start college over, what would you do differently? Also, which of your college experiences would you NOT change.

2. If you could start college over, would you choose to graduate with the same major?

( )definitely yes ( )probably yes ( )uncertain ( )probably no ( )definitely no 66

Why or why not?

67-68

3. If you could start college over, would you choose to attend UCD?

( )definitely yes ( )probably yes ( )uncertain ( )probably no ( )definitely no 69

4. How much did your undergraduate education at UCD contribute to your growth in the following areas? Place your answer in the blanks to the left, using the following scale.

*1=very much 2=somewhat 3=very little 4=not at all*

_____ Writing effectively 72

_____ Speaking in public 73

_____ Understanding written information 74

_____ Persisting in difficult tasks 75

_____ Working cooperatively in a group 2/1

_____ Leading or guiding others 2

_____ Defining and solving problems 3

_____ Recognizing assumptions/making logical inferences/reaching correct conclusions 4

_____ Understanding and applying scientific principles and methods 5

_____ Self confidence/self understanding 6

_____ Understanding and appreciating the arts 7

_____ Understanding people of other races and ethnic backgrounds 8

_____ Recognizing your rights, responsibilities and privileges as a citizen 9

_____ Knowledge of the job opportunities for your major 10

## D. USE OF UNIVERSITY SERVICES 11

1. Check which of the following sources you used in obtaining your first full-time job after college? (You may check more than one.) 12

( )UCD Work-Learn and Career Planning and Placement Office referral (South Hall) 13
( )UCD faculty referral
( )public employment agency
( )private employment agency
( )help-wanted ad in newspaper/ magazine/journal
( )direct personal application
( )word-of-mouth from friend/ relative/associate 14
( )other (specify) 15

_____ 16

17

2. Indicate how significant each of the following forms of COLLEGE work experience has been in your present employment. Use the following scale: 18

*1=very significant, 2=some significance, 3=little significance, 4=not applicable* 19

20

_____ internship _____ teacher aid 21

_____ research assistant _____ other job held during school year 22

_____ summer job 23

3. 1979 GRADUATES ONLY. Rate how valuable the following services at the UCD Work-Learn and Career Planning & Placement Center have been to you <u>in getting a job</u>. 24

*1=high value, 2=medium value, 3=low value, 4=you did not use that service* 25

26

27

_____ internship
_____ resume writing workshop
_____ interview skills workshop
_____ job search skills workshop
_____ career resources library
_____ career advising
_____ personal conferences with staff
_____ on-campus interviews

28

29

30

## E. BACKGROUND INFORMATION

31

1. What was your undergraduate major at UCD? _____ 32-34

2. In what month and year did you receive your bachelor's degree? ____ ____ 35
mo. yr.

3. What was your overall undergraduate GPA at UCD? _____ 36-38

4. Please indicate your primary activity at this time. (Check only one.)

( )looking for work ( )attending school ( )employed ( )homemaker 39
( )other (please specify) _____

5. Sex: ( )female ( )male 40

6. Please check the ethnic category to which you belong.

( )American Indian/Alaskan Native
( )Asian-American
( )Black/Afro-American
( )Ch'cano/Mexican-American
( )Latino/Other Spanish-American
( )Philipino/Filipino
( )White/Caucasian
( )Other

41

42-44

**********

Any information given below will not be associated with your answers to previous questions in any way.

**********

7. What is the name and zip code of the organization for which you work? (This information is used to advise UCD students about firms that employ UCD graduates.)

_____ _____
Name of firm Zip code

8. Would you be interested in talking to high school or junior college students in your area about applying to UCD? If you indicate interest, you will be contacted by UCD Admissions and further arrangements will be made for your assistance in their outreach program. If interested, please write your name, address, and phone number below.

_____ _____ ( ) _____
Name Address Phone

9. As a final matter, you can help us avoid sending you another set of materials by printing your name below. It will then be removed from the roster.

_____
Name (Please Print)

THANK YOU!

## APPENDIX B

### NUMBER OF RESPONDENTS BY UNDERGRADUATE MAJOR

### 1973 AND 1979 GRADUATES

| MAJOR | 1973 | 1979 |
|---|---|---|
| **ANIMAL SCIENCE** | | |
| - Agri Sci & Mgmt | 5 | 16 |
| - Animal Science | 30 | 38 |
| - Avian Science | 0 | 4 |
| - Pre Vet Med | 11 | 0 |
| - Wildlife/Fish Bio | 21 | 12 |
| **APPLIED ECONOMICS** | | |
| - Agri Bus Mgmt | 2 | 31 |
| - Agri Economics | 7 | 30 |
| - Ag Econ & Bus Mgmt | 6 | 16 |
| - Dev, Res, & Con Econ | 1 | 2 |
| **BIOLOGICAL SCIENCES** | | |
| - Bacteriology | 10 | 5 |
| - Biochemistry | 27 | 55 |
| - Biological Sci | 79 | 55 |
| - Botany | 9 | 13 |
| - Genetics | 6 | 18 |
| - Physical Education | 20 | 8 |
| - Physiology | 25 | 29 |
| - Zoology | 64 | 49 |
| **ENGINEERING** | | |
| - Engr (unspecified) | 7 | 8 |
| - Aeronautical Engr | 1 | 0 |
| - Agri Engineering | 3 | 12 |
| - Chem Engineering | 10 | 18 |
| - Civil Engineering | 31 | 43 |
| - Civ/Mats Sci & Engr | 0 | 2 |
| - Electrical Engr | 23 | 48 |
| - Elec/Mats Sci & Engr | 0 | 1 |
| - Individual Engr | 0 | 2 |
| - Mechanical Engr | 20 | 27 |
| - Mech/Mats Sci & Engr | 0 | 1 |
| **FOOD, NUTRITION, AND CONSUMER SCIENCES** | | |
| - Community Nutrition | 0 | 2 |
| - Consumer Food Sci | 5 | 3 |
| - Dietetics | 14 | 26 |
| - Diet & Nutrition | 5 | 0 |
| - Fermentation Sci | 7 | 11 |
| - Food Biochemistry | 1 | 4 |
| - Food Science | 15 | 23 |
| - Food Service Mgmt | 1 | 0 |
| - Home Economics | 25 | 15 |
| - Nutrition | 3 | 5 |
| - Nutrition Science | 5 | 18 |
| - Textiles | 14 | 22 |
| - Textile Science | 3 | 2 |
| **FINE ARTS** | | |
| - Art | 28 | 5 |
| - Art History | 6 | 5 |
| - Art Studio | 9 | 11 |
| - Dramatic Art | 12 | 4 |
| - Music | 2 | 4 |
| **INTERDISCIPLINARY** | | |
| - American Studies | 5 | 4 |
| - Chicano Studies | 0 | 3 |
| - Comp Literature | 2 | 1 |
| - Humanities | 2 | 0 |
| - Individual | 30 | 46 |
| - Int'l Relations | 11 | 27 |
| - Linguistics | 2 | 1 |
| - Mass Comm | 2 | 12 |
| - Medieval Studies | 0 | 1 |
| **LETTERS** | | |
| - Classics | 1 | 0 |
| - English | 48 | 27 |
| - English-Linguistics | 0 | 1 |
| - English-Teaching | 0 | 1 |
| - English-Writing | 2 | 4 |
| - French | 10 | 10 |
| - German | 6 | 1 |
| - Philosophy | 4 | 2 |
| - Rhetoric | 9 | 6 |
| - Russian | 3 | 1 |
| - Spanish | 22 | 6 |
| **PHYSICAL SCIENCE AND MATH** | | |
| - Chemistry | 11 | 6 |
| - Geology | 12 | 7 |
| - Math | 29 | 3 |
| - Physical Science | 1 | 1 |
| - Physics | 8 | 2 |
| **PLANT SCIENCE AND PLANT/DISEASE MGMT** | | |
| - Agronomy | 1 | 2 |
| - Crop Protection | 1 | 0 |
| - Entomology | 9 | 11 |
| - Int'l Agri Dev | 2 | 3 |
| - Plant Science | 17 | 36 |
| - Range/Wildlands Sci | 0 | 10 |
| **RESOURCE SCIENCES** | | |
| - Atmospheric Sci | 2 | 7 |
| - Envir Toxicology | 0 | 4 |
| - Envir Plan & Mgmt | 22 | 45 |
| - Renew Nat Resources | 22 | 7 |
| - Soil & Water Sci | 9 | 9 |
| - Soil Science | 0 | 1 |
| **SOCIAL/BEHAVIORAL SCIENCES** | | |
| - Agri Education | 0 | 6 |
| - Anthropology | 18 | 5 |
| - Appl Behavior Sci | 20 | 22 |
| - Child Development | 73 | 2 |
| - Design | 26 | 44 |
| - Economics | 49 | 71 |
| - Geography | 11 | 7 |
| - History | 62 | 22 |
| - Human Development | 4 | 37 |
| - Political Science | 56 | 29 |
| - Poli Sci/Pub Serv | 4 | 10 |
| - Psychology | 101 | 44 |
| - Sociology | 32 | 16 |
| **MISCELLANEOUS** | 2 | 2 |

## APPENDIX C

## SURVEY METHODS

In May 1980 questionnaires were mailed to all UC Davis bachelor degree recipients of calendar years 1979 and 1973. A follow-up post card was sent to all graduates two weeks later; this was followed by a second questionnaire to nonrespondents one month after the first mailing. Responses were accepted until August 1980. There were 1328 and 1348 usable questionnaires returned from the 1979 and 1973 graduates respectively. This represented 50% of both graduating classes. If only deliverable questionnaires are considered, the response rates were 54% (1973) and 61% (1979).

Steps were taken to assess the degree to which respondents were representative of their graduating class. There are two possible sources of nonrepresentativeness, or survey bias. Sampling bias occurs when the subjects chosen for the sample differ systematically from those not sampled. Sampling bias does not occur in the present survey because all graduates of 1973 and 1979 were surveyed. Nonsampling, or response, bias occurs when those who respond to the survey differ systematically from those who do not respond. Research shows that respondents are usually of higher socio-economic status than nonrespondents and are more disposed towards the survey topic (in this case, UC Davis). Two methods were used to check for the possibility of response bias:
1) Several respondent characteristics (sex, ethnicity, and field of study) were compared with characteristics of the 1973 and 1979 graduating class. Table C1 shows that among 1979 (but not 1973) graduates, ethnic minorities (except Asians) are underrepresented

TABLE C1

CHARACTERISTICS OF SURVEY RESPONDENTS

AND THE GRADUATING CLASSES OF 1973 and 1979[1]

(In percent)

| CHARACTERISTIC | | 1979 Respondents (n=1328) | 1979 Graduates (n=2504) | 1973 Respondents (n=1348) | 1973 Graduates (n=2680) |
|---|---|---|---|---|---|
| SEX: | Female | 52 | 52 | 49 | 47 |
| | Male | 48 | 48 | 51 | 53 |
| ETHNICITY: | White | 86 | 83 | 89 | 88 |
| | Asian | 8 | 9 | 6 | 7 |
| | Other Minority | 5 | 9 | 4 | 5 |
| FIELD OF STUDY: | Animal Science | 5 | 5 | 2 | 5 |
| | Applied Economics | 6 | 5 | 1 | 1 |
| | Biological Sciences | 17 | 20 | 19 | 20 |
| | Engineering | 12 | 13 | 7 | 7 |
| | Food Nutrition/ Consumer Science | 10 | 9 | 7 | 6 |
| | Fine Arts | 2 | 2 | 4 | 5 |
| | Interdisciplinary | 7 | 7 | 4 | 5 |
| | Letters | 4 | 4 | 8 | 9 |
| | Physical Science/ Mathematics/Statistics | 1 | 2 | 5 | 4 |
| | Plant Science & Disease Management | 5 | 4 | 2 | 2 |
| | Resource Sciences | 5 | 6 | 4 | 3 |
| | Social/Behavioral Sciences | 24 | 22 | 35 | 33 |

[1]Characteristics of graduates in calendar years 1973 and 1979 were taken from CUF, an administrative research file. Statistics may differ somewhat from official University statistics due to multiple degrees and other factors.

among respondents. Other differences between respondent and graduate characteristics are small and of no practical import. The problem of low minority response for 1979 does not seriously bias aggregate survey statistics because minorities (except Asians) do not comprise a high proportion of graduates. But underresponse coupled with small numbers of graduates makes it difficult to report results for minority groups. For this reason a separate survey of minority graduates of 1973-1979 was conducted in 1980 and will be reported separately.

2) The second method used to assess response bias was a telephone survey of nonrespondents. The survey was conducted in April 1981, using telephone numbers that were current at the date of the original mailout. Conducted during the hours 5 p.m. - 9 p.m., the telephone survey was phrased in such a way that respondents reported their activities during the time of the first survey mailing. Among the sixty graduates of each year contacted, none refused to be interviewed. The amount of time that had elapsed between the telephone survey and the original survey may have resulted in some inaccurate responses, although respondents did not report this as a problem. The possibility still exists, however, that the respondents to the telephone survey were a special group in that they could be reached at (or traced from) telephone numbers almost a year old. The direction of this possible bias is difficult to predict, but it would probably tend to minimize differences between the graduates contacted by mail and by telephone, because both groups would tend to be geographically stable groups.

Analysis showed that survey respondents and nonrespondents (contacted by telephone) were <u>similar</u> (as measured by a Chi-square test, 5% level of significance) in the following characteristics: percent who had taken graduate level courses, percent enrolled in graduate/professional studies, percent holding a post-baccalaureate degree, percent employed, undergraduate GPA, ratings of preparation for graduate school and jobs, opinions as to whether they would (1) attend UCD again and (2) choose the same major.

Respondents and nonrespondents <u>differed</u> significantly on the following characteristics:

1) <u>Primary activity</u>. Graduates were asked to indicate their primary activity (in May 1980) and were given five response options: looking for work, attending school, employed, homemaker, and other. Primary activities of nonrespondents were significantly different than that of respondents of the 1973 graduating class. However, because the survey's direct measures of employment and schooling are similar for respondents and nonrespondents, differences are not considered serious.

2) <u>Percent employed outside their preferred career field</u>. Nonrespondents of 1973 were more likely to be employed in jobs outside their career field than respondents (22% versus 15%).

Thus, if the telephone survey gives an accurate assessment of nonrespondents' activities, the mailed survey results may <u>understate</u> the proportion of 1973 graduates working outside their preferred career field. This conclusion is noted where appropriate in the text.

## APPENDIX D

## INCIDENCE OF POSTGRADUATE STUDY FOR MALES AND FEMALES[1]

## BY FIELD OF STUDY

(In percent of each sex within each field of study, 1973 graduates)

| SEX | UNDERGRADUATE FIELD OF STUDY | | | | | | | | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | An Sci (n=63) | App Econ (n=16) | Bio Sci (n=245) | Engr (n=96) | Fine Arts (n=57) | Food Sci (n=98) | Inter-disc (n=57) | Letters (n=104) | Phys Sci (n=61) | Plant Sci (n=30) | Res Sci (n=55) | Soc Sci (n=457) | (n=1339) |
| Female (n=659) | 53 | *[2] | 51 | *[2] | 54 | 52 | 51 | 65 | 60 | 36 | 31 | 56 | 55 |
| Male (n=680) | 68 | 42 | 73 | 40 | 63 | 41 | 70 | 94 | 77 | 68 | 44 | 63 | 63 |
| Total (n=1339) | 65 | 37 | 66 | 41 | 56 | 49 | 58 | 69 | 72 | 57 | 40 | 59 | 59 |

[1]Table includes currently enrolled students and those who have acquired degrees. Students taking coursework only and students who have interrupted their degree programs are not included.
[2]There were not enough female respondents in these fields of study for analysis.

## APPENDIX E

### ADVANCED DEGREE FIELDS OF 1973 GRADUATES
(In percent of 1973 graduates who undertook advanced degrees)

| GRADUATE FIELD OF STUDY[1] | UNDERGRADUATE FIELD OF STUDY | | | | | | | | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | An Sci (n=44) | App Econ (n=8) | Bio Sci (n=196) | Engr (n=45) | Fine Arts (n=37) | Food (n=54) | Inter-disc (n=43) | Letters (n=92) | Phys Sci (n=49) | Plant Sci (n=20) | Res Sci (n=26) | Soc Sci (n=329) | (n=943) |
| Agriculture | 14 | 25 | 5 | | | 9 | 2 | 1 | 2 | 15 | 23 | 1 | 5 |
| Architecture | | | | | 3 | | | 1 | | | 4 | 2 | 1 |
| Biological Sciences | 30 | | 19 | | 3 | | | | | 55 | 15 | 1 | 8 |
| Business | 5 | 25 | 5 | 18 | 8 | 17 | 12 | 5 | 8 | 10 | 15 | 13 | 5 |
| Communications | | | | | | 2 | 7 | 8 | | | | 1 | 1 |
| Community Services | | | 1 | | | | 2 | 1 | | | | 7 | 2 |
| Computer Science | | | | | | | | | 4 | | | | * |
| Education | 5 | | 13 | | 22 | 5 | 23 | 40 | 18 | 10 | | 29 | 22 |
| Engineering | | 25 | 1 | 78 | | 2 | 5 | | 8 | | 4 | | 6 |
| Fine Arts | | | 1 | | 46 | 2 | | | | | 4 | 1 | 1 |
| Foreign Language | | | | | 3 | | | 14 | | | | | 2 |
| Health Professions | 43 | | 51 | 4 | 16 | 5 | 23 | 4 | 4 | 10 | 11 | 10 | 20 |
| Home Economics | 2 | | | | | 54 | 5 | | | | | 1 | 4 |
| Law | 2 | | 1 | | | | 7 | 7 | 4 | | 8 | 13 | 9 |
| Letters | | | | | | | 5 | 10 | | | | | 1 |
| Mathematics | | | | | | | | | 22 | | | 1 | 2 |
| Physical Science | | | | | | | | | 29 | | 11 | | 2 |
| Social Science | | 13 | | | | 2 | 7 | 3 | | | | 17 | 6 |
| Other | | 13 | 2 | | | 2 | 2 | 5 | | | 4 | 1 | 3 |

[1] Highest degree field.
*=less than 0.5%.

## APPENDIX F

## SCHOOLS ATTENDED FOR FIRST POSTGRADUATE DEGREE

(In percent of graduates who continued their educations)

| School | YEAR OF GRADUATION FROM UCD | | |
|---|---|---|---|
| | 1979[1] *(n=419)* | 1976[2] *(n=484)* | 1973[1] *(n=804)* |
| University of California | 49 | 45 | 44 |
| (UCD) | (36) | (29) | (31) |
| (UCB) | ( 3) | ( 5) | ( 5) |
| (UCSF) | ( 3) | ( 4) | ( 2) |
| (UCLA) | ( 4) | ( 3) | ( 4) |
| (UCI) | ( 1) | ( *) | ( 1) |
| (UCR) | ( 0) | ( *) | ( 1) |
| (UCSD) | ( 2) | ( *) | ( 1) |
| (UCSB) | ( 1) | ( *)[3] | ( *) |
| California Private Colleges | 14 | 19 | 15 |
| Out of State Colleges | 17 | 20 | 15 |
| California State Universities and Colleges | 11 | 14 | 20 |
| Other | 10 | 3 | 4 |

[1]1980 Survey of Graduates. Respondents were one and seven years out of college.

[2]1977 Survey of Graduates. Respondents were one year out of college.

[3]Asterisks indicate less than one-half of a percent.

APPENDIX G

PERCENT OF GRADUATES EMPLOYED IN THE FIELD OF THEIR CHOICE

BY UNDERGRADUATE FIELD OF STUDY

-1979 and 1973 Graduates-

| YEARS SINCE GRADUATION | UNDERGRADUATE FIELD OF STUDY | | | | | | | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | An Sci | App Econ | Bio Sci | Engr | Food Sci | Human-ities | Inter-disc | Phys Sci | Plant Sci | Res Sci | Soc Sci | |
| One | 69 | 83 | 61 | 94 | 85 | 64 | 57 | 77 | 86 | 79 | 70 | 76 |
| Seven | 89 | 100 | 85 | 97 | 85 | 73 | 81 | 100 | 74 | 87 | 81 | 84 |

[1]Figures include only those full-time workers who have decided on a career field. This excludes 12% of 1979 graduates and 6% of 1973 graduates. All percentages are based on an *n* of 30 or more except for: 1979 Physical Science *n* = 13, 1973 Applied Economics *n* = 14, 1973 Plant Science *n* = 19.

## APPENDIX H

## MULTIPLE REGRESSION ANALYSIS OF SIX ASPECTS OF JOB SATISFACTION AND OVERALL JOB SATISFACTION

| SATISFACTION WITH ASPECTS OF FULL-TIME JOBS | 1979 Graduates (n=764) | | | 1973 Graduates (n=943) | | |
|---|---|---|---|---|---|---|
| | Mean Satisfaction Rating[3] | r | F | Mean Satisfaction Rating[3] | r | F |
| Challenge | 2.1 | .68 | 241.70 | 1.8 | .71 | 335.02 |
| People | 1.8 | .47 | 81.96 | 1.9 | .48 | 47.45 |
| Salary and benefits | 2.6 | .46 | 70.49 | 2.3 | .38 | 63.99 |
| Career potential | 2.3 | .60 | 56.27 | 2.2 | .68 | 138.88 |
| Physical working conditions | 1.9 | .43 | 32.05 | 2.0 | .42 | 30.83 |
| Location | 2.0 | .21 | 17.80 | 1.8 | .24 | 18.30 |
| OVERALL JOB SATISFACTION | 2.2 | 1.0 | | 2.0 | 1.0 | |

1 Multiple R = .81; $R^2$ = .66; F = 247.93.
2 Multiple R = .83; $R^2$ = .69; F = 345.25.
3 Mean satisfaction scores on a scale from 1 (very satisfied) to 5 (very dissatisfied). All statistics reflect only full-time workers.

## APPENDIX I

### OCCUPATIONS OF 1973 GRADUATES WORKING FULL-TIME
- by Sex and Field of Study -

(In percent[1] of each field of study and sex)

| OCCUPATIONS | UNDERGRADUATE FIELD OF STUDY | | | | | | | | | | | SEX | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | An Sci (n=48) | App Econ (n=14) | Bio Sci (n=158) | Engr (n=37) | Food Sci (n=61) | Human-ities (n=38) | Inter-disc (n=33) | Phys Sci (n=49) | Plant Sci (n=21) | Res Sci (n=42) | Soc Sci (n=330) | Male (n=538) | Female (n=406) | (n=948) |
| Sciences | 21 | | 15 | 3 | 18 | | 3 | 22 | 14 | 48 | 5 | 12 | 7 | 10 |
| Computers/Math | | | 1 | 1 | | | 6 | 6 | | 2 | 1 | 1 | 2 | 1 |
| Engineering | | | 2 | 75 | | 8 | 6 | 12 | 5 | 9 | 1 | 14 | 3 | 9 |
| Agriculture | 13 | 21 | 2 | 2 | 3 | | 3 | | 9 | 7 | 1 | 4 | * | 3 |
| Finance/Purchasing/Insur | 6 | 43 | 3 | 1 | 5 | 3 | 15 | 6 | 5 | 2 | 17 | 9 | 10 | 10 |
| Manufacturing | 6 | | 6 | 13 | 10 | 5 | | 10 | 14 | 2 | 3 | 8 | 3 | 6 |
| Personnel | 2 | | 2 | | 2 | | 15 | | | | 8 | 1 | 9 | 5 |
| Trade | | 14 | 3 | 1 | 13 | 3 | 3 | | 9 | 2 | 6 | 3 | 5 | 4 |
| Administration | 2 | 7 | 8 | 3 | 3 | 8 | 9 | 2 | 14 | 7 | 8 | 7 | 6 | 7 |
| Art/Entertainment/ Recreation | 2 | | 1 | | 2 | 24 | | | | | 2 | 1 | 3 | 2 |
| Education (non-college) | 2 | | 9 | | 15 | 26 | 6 | 27 | 5 | 2 | 18 | 7 | 22 | 13 |
| Education (college) | 2 | | 4 | | 2 | 3 | | 2 | 5 | | 1 | 2 | 3 | 2 |
| Animal/Human Health | 31 | | 36 | | 16 | 3 | 6 | 2 | 9 | 5 | 4 | 12 | 10 | 11 |
| Law | 4 | | 1 | | | 3 | 9 | 4 | | 2 | 12 | 9 | 1 | 6 |
| Other Professional | | | 2 | | | | 6 | 2 | | | 3 | 2 | 3 | 2 |
| Non-professional | 8 | 14 | 5 | | 11 | 16 | 9 | 4 | 9 | 10 | 8 | 6 | 11 | 8 |

[1] Percentages will be misleading in fields of study with small *n*.

* = less than 0.5%.

APPENDIX J

MEAN ANNUAL SALARY IN CURRENT FULL-TIME JOB

BY OCCUPATION AND SEX

-1979 Graduates-

| OCCUPATION | MEAN ANNUAL SALARY | | | | | |
|---|---|---|---|---|---|---|
| | Females | | Males | | Overall | |
| | Mean | n | Mean | n | Mean | n |
| **PROFESSIONAL, TECHNICAL & MANAGERIAL** | | | | | | |
| **Sciences** | | | | | | |
| Animal Science | $ 9,743 | 7 | -- | 0 | $ 9,743 | 7 |
| Biological Science | 10,528 | 18 | $12,780 | 10 | 11,332 | 28 |
| Computers/Math | 15,750 | 2 | 18,881 | 10 | 18,300 | 12 |
| Engineering | 16,994 | 36 | 19,381 | 101 | 18,754 | 137 |
| Food Science | 13,733 | 12 | 14,433 | 3 | 13,893 | 15 |
| Physical science | 15,710 | 10 | 14,317 | 6 | 15,188 | 16 |
| Plant Science | 11,100 | 8 | 13,679 | 19 | 12,915 | 27 |
| Resource Science | 13,958 | 12 | 11,267 | 6 | 13,061 | 18 |
| Social Science | -- | 0 | 13,900 | 2 | 13,900 | 2 |
| **Management & Administration** | | | | | | |
| Agriculture | 13,533 | 3 | 15,479 | 19 | 15,214 | 22 |
| Commercial Trade | 12,608 | 26 | 13,333 | 15 | 12,873 | 41 |
| Finance | 13,733 | 43 | 15,385 | 34 | 14,461 | 77 |
| Manufacturing | 16,730 | 10 | 14,750 | 10 | 15,740 | 20 |
| Social Welfare | 11,886 | 14 | 11,783 | 6 | 11,855 | 20 |
| Other Administration | 12,521 | 19 | 15,267 | 21 | 13,963 | 40 |
| **Miscellaneous** | | | | | | |
| Arts/Entertainment | 12,493 | 15 | 11,171 | 7 | 12,073 | 22 |
| Education, Non-College | 9,814 | 14 | 11,100 | 2 | 9,975 | 16 |
| Health: Animal | 9,900 | 2 | 16,475 | 4 | 14,283 | 6 |
| Health: Human | 11,124 | 17 | 11,221 | 14 | 11,168 | 31 |
| Law | 9,900 | 2 | 16,475 | 4 | 14,283 | 6 |
| Library/Museum | 11,900 | 8 | 11,180 | 5 | 11,623 | 13 |
| **OTHER** | | | | | | |
| Clerical | 9,679 | 38 | 10,955 | 11 | 9,965 | 49 |
| Farming | 8,100 | 4 | 12,450 | 4 | 10,275 | 8 |
| Sales | 10,958 | 7 | 15,864 | 11 | 13,956 | 18 |
| Services/Processing | 10,183 | 6 | 12,386 | 7 | 11,369 | 13 |
| Trades | 7,000 | 1 | 14,820 | 10 | 14,109 | 11 |
| Miscellaneous | 12,667 | 3 | 11,300 | 4 | 11,886 | 7 |
| **TOTAL** | $12,630 | 342 | $15,566 | 345 | $14,105 | 682 |

## APPENDIX K

## MEAN ANNUAL SALARY IN CURRENT FULL-TIME JOB BY FIELD OF STUDY AND LEVEL OF EDUCATION

-1973 Graduates-

| UNDERGRADUATE FIELD OF STUDY | LEVEL OF EDUCATION | | | | | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Baccalaureate | | Teaching Credential | | Masters[1] | | Ph.D. | | Professional Doctorate[2] | | | |
| | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n | Mean | n |
| Animal Science | $23,479 | 19 | $16,500 | 2 | $20,727 | 11 | $18,000 | 1 | $26,864 | 1 | $23,195 | 44 |
| Applied Economics | 24,388 | 8 | | | 23,750 | 4 | | | 44,500 | 1 | 25,738 | 13 |
| Biological Sciences | 20,503 | 69 | 17,544 | 16 | 22,052 | 29 | 19,511 | 9 | 29,800 | 30 | 22,267 | 153 |
| Engineering | 28,832 | 53 | | | 27,357 | 30 | 31,100 | 1 | | | 28,332 | 84 |
| Fine Arts | 14,921 | 19 | 14,278 | 9 | 18,600 | 6 | | | 26,000 | 1 | 15,703 | 35 |
| Food, Nutrition and Consumer Science | 17,903 | 36 | 16,050 | 8 | 22,927 | 11 | 23,550 | 2 | | | 18,881 | 57 |
| Interdisciplinary | 18,806 | 16 | | | 19,443 | 7 | 25,700 | 1 | 22,750 | 4 | 19,265 | 31 |
| Letters | 15,433 | 24 | 16,056 | 18 | 17,900 | 14 | 18,833 | 3 | 25,800 | 3 | 16,837 | 62 |
| Plant Science | 17,300 | 9 | 10,000 | 1 | 21,133 | 6 | | | 42,000 | 1 | 19,676 | 17 |
| Physical Science | 22,567 | 15 | 14,378 | 9 | 20,356 | 16 | 21,067 | 3 | 22,200 | 3 | 20,074 | 46 |
| Resource Science | 19,128 | 29 | 14,200 | 1 | 18,043 | 7 | | | 34,500 | 2 | 19,595 | 39 |
| Social Science | 19,936 | 149 | 14,579 | 52 | 21,457 | 74 | 21,850 | 4 | 26,146 | 37 | 20,162 | 316 |
| Total | $20,643 | 448 | $15,250 | 119 | $21,869 | 216 | $21,025 | 24 | $27,697 | 93 | $20,963 | 900 |

[1] Includes both professional masters (e.g., MBA) and academic masters.
[2] Includes physicians, veterinarians, lawyers, dentists, and optometrists.

## APPENDIX L

## VARIMAX FACTORS DERIVED FROM GRADUATES' RATINGS OF GROWTH DURING THEIR UNDERGRADUATE EDUCATION AT UC DAVIS

- 1979 Graduates -

| AREA OF GROWTH | FACTOR | | | | COMMUN-ALITIES |
|---|---|---|---|---|---|
| | Problem solver | Culturally fluent | Leader | Writer | |
| Variable | | | | | |
| Recognizing assumptions, making logical inferences, reaching correct conclusions | .76 | | | | .47 |
| Defining and solving problems | .74 | | | | .59 |
| Understanding and applying scientific principles and methods | .55 | | | | .35 |
| Persisting in difficult tasks | .47 | | | | .29 |
| Understanding written information | .41 | | | .41 | .38 |
| Understanding people of other races and backgrounds | | .73 | | | .56 |
| Recognizing your rights, responsibilities and privileges as a citizen | | .64 | | | .47 |
| Understanding and appreciating the arts | | .56 | | | .39 |
| Self-confidence and self-understanding | | .33 | .35 | | .33 |
| Leading and guiding others | | | .80 | | .69 |
| Working cooperatively in a group | | | .61 | | .46 |
| Speaking in public | | | .49 | | .32 |
| Writing effectively | | | | .70 | .55 |
| Percent variance | 28 | 14 | 9 | 9 | |
| Cumulative variance | 28 | 42 | 51 | 59 | |

Note: Loadings less than .30 in magnitude omitted.

## APPENDIX M

## GRADUATES OF 1979 WHO WOULD CHOOSE THE SAME UNDERGRADUATE MAJOR AGAIN

QUESTION: IF YOU COULD START COLLEGE OVER, WOULD YOU CHOOSE TO GRADUATE WITH THE SAME MAJOR?

| MAJOR | *n* | PERCENT RESPONDING: Probably or Definitely yes | Uncertain | MAJOR | *n* | PERCENT RESPONDING: Probably or Definitely yes | Uncertain |
|---|---|---|---|---|---|---|---|
| Ag Econ | *30* | 73 | 3 | Fermentation Sci | *11* | 91 | 0 |
| Ag Econ & Bus Mgmt | *31* | 81 | 3 | Food Science | *23* | 65 | 22 |
| Ag & Mgmt Econ | *16* | 75 | 13 | French | *10* | 30 | 10 |
| Ag Sci & Mgmt | *16* | 81 | 0 | Genetics | *18* | 39 | 17 |
| Animal Science | *37* | 76 | 5 | History | *22* | 68 | 5 |
| Appl Behavior Sci | *22* | 68 | 5 | Home Economics | *15* | 73 | 13 |
| Art Studio | *11* | 82 | 9 | Human Development | *37* | 81 | 5 |
| Biochemistry | *55* | 69 | 7 | Individual | *46* | 63 | 9 |
| Biological Sci | *54* | 61 | 4 | Int'l Relations | *27* | 67 | 7 |
| Botany | *13* | 39 | 8 | Mass Communication | *12* | 67 | 0 |
| Design | *44* | 66 | 14 | Nutrition Science | *18* | 67 | 17 |
| Dietetics | *25* | 40 | 20 | Physiology | *29* | 69 | 21 |
| Economics | *69* | 67 | 10 | Plant Science | *36* | 75 | 14 |
| Ag Engineering | *12* | 83 | 8 | Political Science | *29* | 48 | 14 |
| Chem Engineering | *18* | 72 | 11 | Psychology | *43* | 70 | 12 |
| Civil Engineering | *43* | 93 | 0 | Sociology | *16* | 31 | 25 |
| Electrical Engr | *46* | 91 | 7 | Textiles | *21* | 67 | 14 |
| Mechanical Engr | *27* | 93 | 7 | Wildlife/Fish Bio | *12* | 92 | 0 |
| English | *32* | 78 | 9 | Zoology | *49* | 69 | 10 |
| Entomology | *11* | 82 | 0 | | | | |
| Envir Plan & Mgmt | *44* | 68 | 14 | TOTAL | *1314* | 69 | 9 |